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Non-State Actors as Proliferators: Preventing their Involvement

IAN J. STEWART AND DANIEL SALISBURY¹

Abstract

Non-state actors are frequently involved in the efforts of states to acquire Weapons of Mass Destruction (WMD). UNSCR 1540 was passed by the UN Security Council in 2004 seeking to limit non-state actors' role in this regard. This paper explores the drivers for and against non-state actor state proliferation as exporters, suppliers and brokers. A framework through which to analyze the drivers for and against non-state actor involvement is developed. This framework considers that non-state actors can be innocent, ignorant, indifferent, or ideologically motivated, while also taking into consideration factors against involvement. The framework is used to analyze three specific case studies. The paper concludes by considering the lessons that can be derived from this framework in efforts to counter proliferation in the future.

Keywords:

Non-state actors, non-proliferation, strategic trade control, weapons of mass destruction (WMD)

Introduction

All states that hold the capacity to manufacture the prerequisite items required for use in Weapons of Mass Destruction (WMD) programs have recognized their obligation not to transfer them for WMD purposes. Nonetheless, the risk that a non-state actor could supply goods without the

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knowledge or blessing of the exporting state continues to be significant. In addition to frequent inadvertent involvement in proliferation, non-state actors have also deliberately acted on behalf of the nuclear programs of Pakistan, North Korea, Iran and probably other states to procure illicit goods without the authorization of the exporting state. The adoption of United Nations Security Council Resolution 1540 in 2004 highlights the priority policymakers have placed in tackling the involvement of non-state actors—defined by the resolution as ‘individuals or entities, not acting under the lawful authority of any state’—in proliferation.²

Nonetheless, despite the fact that it has been more than ten years since the passage of this fundamental resolution, questions regarding the role of non-state actors in proliferation have been inadequately addressed in academic literature. While the literature on proliferation behavior has expanded significantly in recent years, this body of work is still largely focused on the strategic, political and economic considerations of states rather than on the calculus of non-state actors in facilitating proliferation. This article seeks to address the following issues: what motivates non-state actors to become involved in illicit trade? By considering motivations, what can be learned about the necessary policy responses?

This article draws upon on insights from a variety of different academic sources in order to provide an original analytical framework through which to consider the principal factors that drive the involvement of non-state actors in proliferation. This framework is also used to consider policy responses that could deter or prevent non-state actor involvement in proliferation.

The paper proceeds as follows: Firstly, existing literature on non-state actor and drivers for their involvement in proliferation is explored. Next, an original model is presented through which the drivers for and against non-state actor involvement in proliferation can be identified. The paper will then explain how the framework allows for a better conceptualization of policy tools, highlighting some areas that could be improved. Finally, the paper concludes by considering how this framework can aid analysis of proliferation through future research.

The Proliferation Driver Literature

Since the end of the Cold War, ‘driver’ or ‘behavior’ literature has become more prevalent.³ This body of work encompasses literature that seeks to understand and explain why and how states pursue the acquisition of nuclear weapons. While this body of literature has delivered interesting insights from both historical and contemporary policy perspectives, it has also been somewhat limited in scope, since these efforts were mostly focused on analysis of state-level behavior. Even though some theories have considered the roles of individuals—politicians, military strategists and technologists—working within the state context, the roles of these individuals are considered through the lens of that respective state’s nuclear decision-making, military and technological interests, and infrastructure.⁴ In simple terms, this analysis has addressed how these individuals influence or affect the ability of a state to proliferate.

2 United Nations Security Council 1540, S/RES/1540, New York, April 2004.

3 For a sample of the recent state of the field, see the two volumes of William C. Potter and Gaukhar Mukhatzhanova, *Forecasting Nuclear Proliferation in the 21st Century*, (Stanford, CA: Stanford University Press, 2010).

4 Peter R. Lavoy, “Nuclear Myths and the Causes of Nuclear Proliferation,” *Security Studies* 2, (Spring/Summer 1993) pp. 192-212.

The dominant proliferation pathway for many states in recent decades including Iraq, Iran, Pakistan and North Korea has involved the use of non-state actor intermediaries to the international marketplace. Despite the extent of involvement of non-state actors in state proliferation, there have been few attempts to systematically consider what drives the non-state actors that make proliferation possible. Instead, a considerable number of publications have focused on a handful of specific cases that may or may not be representative of all cases - more specifically on A.Q Khan and others in Khan's black-market network.⁵ In the absence of anything similar in scope or significance to compare Khan's network against, this literature has tended to be more descriptive rather than analytical. There has nonetheless been scholarship on the role of non-state actors in proliferation. This includes literature that has examined how proliferation networks can form and sustain.⁶

This article seeks to move beyond this existing literature in order to provide insight into what drives non-state actors' involvement in proliferation. Rather than considering proliferation at the 'macro' or state-level, the authors seek to emphasize the 'micro' level and consider proliferation as an on-going process. It is beneficial to expand proliferation driver literature to include non-state actors. By gaining an understanding of the motivations of non-state actors that are involved in proliferation activities, the modalities of today's most prevalent form of proliferation can be understood. However, building such a framework does not come without challenges; these are explored in the following section.

Challenges in Building a Framework: Actors and Complicity

The diversity of actors encompassed by the term 'non-state actor' and the huge spectrum of individual cases which could constitute involvement in proliferation—among other factors—present a number of difficulties in constructing a single framework. Different levels of complicity are also important to consider. A framework needs to be flexible enough to take the multiplicity of actor types into account. This section argues that a key factor in considering motivations, rather than the type of actors, relates to their deliberate complicity. Building a framework in this regard, therefore, will provide more insights into motivations.

The definition provided by resolution 1540 encompasses many different types of non-state actors. While many analysts have considered UNSCR 1540 primarily as a counter-terrorism tool, those involved in penning the resolution state that it was originally more of a counter-proliferation tool, intended not only to prevent non-state actors from acquiring or using WMD, but also to prevent non-state actors from helping other states to do so.⁷ In this respect the framework must encompass a wide variety of actors involved in proliferation, be it through trade, theft or any other means.⁸ This includes technology holders—manufacturers, exporters and distributors—as well as those that may enable the transfer of these technologies—such as transportation companies, financiers, and insurers.

5 See for example Gordon Corra, *Shopping for Bombs: Nuclear Proliferation, Global Insecurity, and the Rise and Fall of the A.Q. Khan Network*, (Oxford: Oxford University Press, 2006).

6 Alexander H. Montgomery, "Ringing in Proliferation: How to Dismantle an Atomic Bomb Network," *International Security* 30:2, (October 1, 2005), pp. 153–87.

7 Interview with Tobey, W., conducted by Ian Stewart, Summer 2013.

8 See for example, Glenn Anderson, "Points of Deception: Exploring How Proliferators Evade Controls to Obtain Dual-use Goods," *Strategic Trade Review* 2, (Spring 2015) pp. 4–24.

Besides the actors' functions in the supply chain, the non-unitary nature of different actors also needs to be taken into account. The term 'non-state actor' can equally be applied to individuals, groups of individuals, or larger organizations. These groups and organizations may be acting as unitary bodies, but there could also be elements of organizations acting alone or without authorization from above. For example, sales people in the company may be selling goods to sanctioned destinations without proper oversight.

However, this issue cannot be analyzed fully without consideration of the issue of complicity. To view non-state actors as either complicit—knowingly working to supply WMD programs—or non-complicit—lacking knowledge of such activities—is an oversimplification. It is possible, for example, that the non-state actors could either not understand that what they are doing is wrong, or that they have been in some way deceived by other elements in the supply chain.

Complicity relates to key pieces of knowledge and understanding: an actor's position and role in the supply chain, their knowledge and understanding of the other actors, products and their potential end-uses and proliferation as a broad concept. In many senses, it is only the ultimate end-user who possesses the 'full picture' regarding the supply chain, and even this is not always the case.

It is often challenging to identify levels of complicity. The level of knowledge available to the different parties in a supply chain differs based on what information is supplied to them in the first instance, their desire to find out more, and what they are able to find out. If the party knows that the true end-use is prohibited, they can be considered complicit; if the party has been duped then they can be considered ignorant. For example, the supplier has a limited ability to judge whether a customer will actually use the goods in the way described. Similarly, any third party to a transaction may also either be deceived or be deceiving. For the same reasons, when considering whether to authorize an export, governments may have visibility of the trade through the licensing and Customs enforcement mechanisms but may not have access to sufficient information to identify proliferation risks.

A final challenge relating to complicity is that, looking at individual cases, few proliferators talk openly about their efforts. When they do, it is often difficult to fully gauge levels of complicity because those wittingly involved in proliferation may be hesitant to admit so for a number of reasons, including potential legal consequences. Take for example the words of Chinese middleman Karl Li who was indicted twice by the US courts for transfers of materials to Iran's missile program in 2009 and 2014, and is alleged to have continued supply until more recently.⁹ In a 2013 interview, Li is allegedly noted: 'Sure, we did business with Iran, but we did not export the goods they said we did, missiles or whatever.'¹⁰ Even in such cases where evidence is overwhelming, non-state actors often continue to deny that they did anything wrong.

Factors such as the long and complex nature of modern supply chains, the diversity of non-state actors, their not-necessarily unitary nature, and the difficulties in establishing complicity can

9 Daniel Salisbury, and Ian Stewart, "Li Fang Wei (Karl Lee)," Proliferation Case Study Series, Project Alpha, King's College, 2014, <<http://npsglobal.org/eng/images/stories/pdf/karlee.pdf>>, p. 8; Discussion with former government official.

10 William Maclean and Ben Blanchard, "Exclusive: Chinese Trader Accused of Busting Iran Missile Embargo," *Reuters*, March 1, 2013, <<http://www.reuters.com/article/2013/03/01/us-china-iran-trader-idUSBRE9200BI20130301>>.

make for a highly complex picture. Take for example a large organization—a manufacturer or an exporter—that is involved in transfers to a sanctioned program. While certain elements within the organization (such as a rogue salesman) may be complicit, the broader organization, including other salespeople, the compliance team, and management, may not. If the rogue salesperson knows that the end-use of the goods is prohibited, they may make efforts to deceive other elements of the organization that it is not. Similarly, the organization's interest in export compliance, the adequacy of the compliance chain of command, or organizational oversight may not be sufficiently well developed to prevent 'rogue' actors within that organization from acting independently.

Why Do Non-state Actors Become Involved?

Two principle drivers could lead non-state actors to become involved in proliferation. The first is 'profit,' meaning financial gain and related social benefits. The second, 'ideational motivations,' relates to the beliefs of those involved. These drivers may not be exclusive and will be explored below in more detail using a variety of examples.

Proliferation for Profit

Profit in this context primarily relates to financial gain. However, it may also encompass other benefits related to profit such as community status, reputation, and prestige. In most cases, there is little prestige or reputational gain to be made—at least in the long-term—from involvement in proliferation (although some individuals appear to have enjoyed the notoriety of becoming associated with proliferation).¹¹ However, a number of cases—notably those where actors have been able to obtain some form of loose protection from a state, or are able to avoid US judicial efforts—have shown that the monetary benefits can be substantial.

Profit as a driver needs to be considered in a number of respects. Profit is obviously a principal driver for business activities. There are many different ways in which profit can be realized. It could be the result of longer-term business relationships, for example, or it could be the result of one-off transactions. Difficult decisions may be necessary when pursuit of one type of profit jeopardizes pursuit of another. For example, more established companies might opt not to pursue higher-risk shorter-term profits where this would jeopardize longer-term business interests. Less established companies, on the other hand, could perhaps be expected to be less risk averse.

What is certain is that there is profit to be made, both in gross terms and in individual transactions. Uncovering profits in gross terms is often difficult, but several examples can provide insights into the magnitude of such gains. In gross terms, Khan, for example, is said to have made \$100 million.¹² The involvement of other middlemen in Khan's network was also driven by profit. For example, one intermediary in the network is said to have taken a ten percent cut on top of a \$5 million base.¹³

11 Nick Gillard, "Catch Me if you Can: The Illicit Trade Network of Daniel Frosch," Proliferation Case Study Series, Project Alpha, King's College, January 2015, <<https://www.acsss.info/proliferation/item/380-new-alpha-case-study-the-illicit-trade-network-of-daniel-frosch>>.

12 D.E. Sanger and W.J. Broad, "Pakistani's Nuclear Earnings: \$100 Million," *New York Times*, March 15, 2004, <<http://www.nytimes.com/2004/03/16/international/asia/16NUKE.html>>.

13 Bruno Gruselle, "Proliferation Network and Financing," Fondation pour la Recherche Stratégique, March 3, 2007, <http://www.stanleyfoundation.org/publications/working_papers/Delory5.pdf>, p. 11.

The scale of Khan's network has not been replicated, but the activities of a Chinese businessman, Li Fang Wei, who has been indicted multiple times by the U.S for his role in supplying Iran's missile program, highlight the more modest, but still significant scale of potential profits. Recently, U.S authorities seized \$6,895,000 from the numerous front companies that Li had been using to undertake his proliferation-related activities.¹⁴

In terms of the profit that may inspire a normally compliant manufacturer or exporter to make an illicit sale, the premiums paid by those sourcing goods illicitly may be a driving factor. For example, Khan is said to have regularly paid up to fifty percent above the legal market price for goods in his procurement activities for the Pakistani nuclear program.¹⁵ A more recent case involving the sale of pressure transducers to Iran's program saw units sell at a little over a one hundred percent mark-up on price, some of which could have been used to pay off others involved.¹⁶ Beyond actively driving a non-state actor to illicit transactions, the lucrative profits or mark-up may drive a normally law-abiding individual to turn a blind eye to such activities, or undertake less due diligence.

The profitability of involvement in illicit trade needs to be considered in the context of opportunity cost versus the risk of being discovered and facing justice. In this regard, some business relationships and business structures might be more sustainable than others. The cases above—Khan and Li—where individuals were able to amass millions of dollars from their activities, involved actors located in countries that did not seek to actively stop their efforts at the time and which might have prevented other countries from taking action against these individuals.¹⁷ It might be that longer-term profiles will generally be smaller and business relationships shorter and less sustainable in more carefully regulated jurisdictions.

Ideas and Involvement

The second principal driver is what the authors have termed 'ideational motivations.' These relate to both 'principled' and causal beliefs.¹⁸ Principled beliefs are those that pertain to conceptions of what is right and what is wrong.¹⁹ In this context, this could refer to a non-state actor's belief in the injustice of the current state of affairs. This could in turn contribute to a disdain for the objectives of the 'discriminatory' nature of export controls, the supplier regimes, and indeed perhaps the whole non-proliferation regime. It could also relate to a sense

14 See for example, Ian Stewart and Daniel Salisbury, "Wanted: Karl Lee," *The Diplomat*, May 22, 2014, <<http://thediplomat.com/2014/05/wanted-karl-lee/>>.

15 "Nuclear Black Markets: Pakistan, A.Q Khan, and the Rise of Proliferation Networks - A Net Assessment," International Institute for Strategic Studies, May 2, 2007, <<https://www.iiss.org/en/publications/strategic%20dossiers/issues/nuclear-black-markets--pakistan--a-q--khan-and-the-rise-of-proliferation-networks---a-net-assessmen-23e1>>, p. 26.

16 Ian Stewart, Andrea Stricker and David Albright, "Chinese Citizen's Involvement in the Supply of MKS Pressure Transducers to Iran: Preventing a Reoccurrence," ISIS Reports, April 14, 2014, <http://isis-online.org/uploads/isis-reports/documents/MKS_China_30Apr2014-final.pdf>.

17 Eben Harrell, "Nuclear Proliferation: The Crime with No Punishment?," *Time Magazine*, September 16, 2011, <<http://content.time.com/time/world/article/0,8599,2092585,00.html>>.

18 Judith Goldstein, and Robert Keohane, *Ideas and Foreign Policy*, (Ithaca: Cornell University Press, 1993).

19 Ibid, 9.

of injustice regarding a specific country's exclusion from the international market, or an affinity with the people of that state on such grounds. The Khan case is a key case in this respect. In interviews following his arrest, Khan made a number of statements justifying his actions in this manner. In a 2008 interview, he noted that he 'broke their [the West's] monopoly.'²⁰ He also stated that 'If you become so subservient, even a child can jump and sit on your back. If you have no pride and you become a crony and a stooge, this sort of thing happens.'²¹ Khan was also said never to have talked of 'selling the technology, only of "sharing" it.'²²

Causal beliefs, on the other hand, are those regarding cause-effect relationships.²³ These for example could relate to the belief that the non-state actor's actions would help to make the unjust situation better. Alternatively, the non-state actor may like to see the proliferating state succeed and hold causal beliefs regarding both their material contribution to this end and the effect that this might have on the state affairs. This could be achieved, for example, by improving the country's security or rectifying an unjust regional balance of power.

One tenant of these causal beliefs relates to an individual's nationality and related politics. For example, due to either strong political allegiances or weaker connections through their involvement in diaspora communities, a number of illicit procurement cases to Iran have involved Iranian diaspora communities abroad, including the Tanideh case set out below. In recent Iranian illicit procurement cases, for example, Iranian nationals have been involved in procuring equipment from businesses in a number of more developed countries, including Canada, the Philippines, the UK, the U.S, and Malaysia.²⁴ Of course, some of these may have been — loosely — acting on behalf of the Iranian state, however not under their 'lawful authority.'

It must not however be assumed that ideology always plays a central role in driving the actions of individuals in diaspora communities. A recent case involving the transfer of valves from Germany and India to Iran presents a case in point.²⁵ While it would be easy to assume the three German-Iranian dual nationals involved and later jailed — a father and son duo, and another — were acting on the basis of allegiance to the aims of the Iranian regime, it seems that this was not the case. An eyewitness who attended the trial noted that while the father and son were clearly motivated by their allegiance to the Iranian regime, the other did not share this politics and was more motivated by profit.²⁶ Intuitively, it seems likely that other factors such as loyalty might also have been factors.

20 Saeed Shah, "Transcript of Interview with A.Q. Khan," *The Globe and Mail*, June 4, 2008, <<http://www.theglobeandmail.com/news/world/transcript-of-interview/article1056036/?page=all>>.

21 Ibid.

22 "A Tale of Nuclear Proliferation: How Pakistani Built His Network," *New York Times*, December 2, 2004.

23 Judith Goldstein, and Robert Keohane, *Ideas and Foreign Policy*, (Ithaca: Cornell University Press, 1993), p. 10.

24 See, for example, Ian Stewart, and Nick Gillard, "Iran's Illicit Procurement: Past, Present and Future," Project Alpha Report, Project Alpha, King's College, July 24, 2015, <<https://www.acsss.info/proliferation/item/428-iran-s-illicit-procurement-past-present-and-future>>.

25 Cathrin Gilbert, Holger Stark, and Andreas Ulrich, "German Investigators Uncover Illegal Exports," *Spiegel Online*, October 1, 2012, <<http://www.spiegel.de/international/world/nuclear-technology-for-iran-german-investigators-uncover-illegal-exports-a-858893-2.html>>.

26 Interview, unnamed individual that attended the November 2013 trial in Hamburg, Germany, conducted January 10, 2014.

Why Do Non-state Actors Not Become Involved?

A framework that fully considers the decision-making calculus of non-state actors must also consider what factors could cause them not to become involved. On this side of the equation, there are two types of factors that lead to a conscious decision on the actors' behalf to restrain themselves. These are deterring factors, which require broader social and normative considerations.

Deterrence

For an actor to be deterred, the potential perceived cost of the action must outweigh the benefit. The previous section identified the primary benefit for involvement in proliferation as financial. Therefore, the possible punishment must, on balance, outweigh the potential financial gain.

Two conditions must be met in order for non-state actors to be deterred from involvement in proliferation. Firstly, the cost (or punishment) of undertaking the prohibited action must be greater than the benefit. Secondly, the likelihood of paying this cost must be sufficient not to change this calculus (i.e., deterrence must be 'credible'). For the deterrent effect to be realized, it may also be that the actor be aware of the costs involved in their actions and that they are rational. These factors are explored in turn.

Punishment

While resolution 1540 does require states to criminalize involvement in WMD proliferation, there is no standardization over the level of penalties involved. In Malaysia, a violation of the Strategic Trade Act can result in a death sentence, whereas in Ireland the maximum penalty is twelve months imprisonment—the lowest in Europe.²⁷ As Bauer highlights in the case of the European Union, penalties for involvement in proliferation activities vary considerably from state to state.²⁸ It is evidently difficult to infer the cost of non-financial penalties such as prison sentences (although in Austria one serial proliferator was offered the chance to 'buy out' of prison by paying a fine for every day that he would otherwise have spent in prison).²⁹

In a handful of cases, it has not only been the actor's own government that has taken enforcement action, but also third party governments (particularly, the United States) or, in a limited set of cases, the United Nations. The actions taken in these cases have involved freezing financial assets and pursuit of extraditions.

27 Ibid.

28 Sibylle Bauer, "WMD-related Dual-use Trade Control Offences in the European Union: Penalties and Prosecutions," EU Non-proliferation Consortium Paper no. 30, July 2013, <<http://www.sipri.org/research/disarmament/eu-consortium/publications/nonproliferation-paper-30>>.

29 Nick Gillard, "Catch Me if you Can: The Illicit Trade Network of Daniel Frosch," Proliferation Case Study Series, Project Alpha, King's College, January 2015, <<https://www.acsss.info/proliferation/item/380-new-alpha-case-study-the-illicit-trade-network-of-daniel-frosch>>.

Credibility

For the deterrence effect to be realized, it is not enough for a law to exist. Instead, the risk of the punishment being enacted must also be taken into account—that is, the punishment must be credible.

There are several challenges to the credibility of violations in the export control domain, not least is the variation in the existence of national laws. Another factor is the lack of prosecutions for involvement in proliferation. It has been well documented that much of A.Q Khan's network escaped prosecution for a variety of reasons.³⁰ In many countries, such as the UK, violators are offered the option of settling violations anonymously. The net effect is that most actors will not know others who have been prosecuted and may conclude as a result that the likelihood of action against them is low.

Awareness and Rationality

Beyond the specific challenges to the deterrence effect outlined above, two preconditions can be linked to its effectiveness. The first is awareness. The second is rationality.

It is apparent that an actor must be aware of the severity and likelihood of punishments if they are to be deterred. However, at present, there does not appear to be a broad awareness of export compliance requirements, let alone of the penalties for non-compliance in most countries around the world. Additionally, it may be the case that actors must be rational in order to be deterred.

A key challenge is that most actors that could become involved in proliferation are not unitary actors. Usually, they are companies with more than one employee. In this circumstance, it may not be sufficient for one member of staff to have an awareness of the costs involved in a violation as another employee could decide to act on their own. While effective corporate governance should overcome this risk, in reality, there are many examples of export control violations occurring because of the actions of individual employees or groups of employees. Also, it is key to note that compliance does not always lead to nonproliferation, and at the same time, non-compliance does not always mean supply of programs of concern. It has been demonstrated a number of times that firms have to go beyond compliance in order to prevent illicit trade. It is compliance and not the spread of these beyond compliance practices that is driven by deterrence.

Broader Social and Normative Factors

Broader social and normative factors need to be considered beyond deterrence. Individuals and companies might avoid involvement in illicit trade because they think that it is not the right thing to do in moral terms. Perhaps they are making a conscious effort to maintain a good reputation and image. These types of factors are clearly a driver when it comes to beyond-compliance behavior. Larger organizations often have a Corporate Social Responsibility (CSR) program. It is evidently difficult to quantify this effect, however, as such normative considerations might only be applicable to actors with a high level of understanding about how their actions could contribute to proliferation.

30 Eben Harrell, "Nuclear Proliferation: The Crime with No Punishment?," *Time Magazine*, September 16, 2011, <<http://content.time.com/time/world/article/0,8599,2092585,00.html>>.

The Four ‘I’s: Building a Framework for Non-state Actors

The drivers, both positive and negative, considered above are clearly not mutually exclusive when factored into a non-state actor’s decision-making process. They also may vary in terms of context—for example on a specific transfer, recipient, technology or shipment route.

These driving factors—in different directions—and the considerations relating to the witting and unwitting-ness of actors can be brought together into the ‘four ‘I’s’ framework, is shown in figure 1 below. Across a spectrum, the presented framework provides a loose typology of four types of non-state actors that may become involved in proliferation. These four types encompass four levels of witting-ness and the likely motivations of these actors, and are illustrated with hypothetical examples. They are as follows:

- **Innocent** – these actors believe that they have done nothing wrong. In fact, they are often unaware that they may have done something wrong until they are alerted by the national authority. Take for example a manufacturer that exported sensitive goods to a customer in China on good faith, having conducted appropriate levels of due diligence and other checks, often involving the national authority (perhaps by applying for a necessary export license). They are later contacted by the national authority and alerted to the fact that their goods may have ended up in Iran. While driven primarily by profit—as most all business activity is—they are unaware of their involvement, and hence they are not driven by any more specific factors.
- **Ignorant** – these actors do not possess an understanding of the regulations and controls, proliferation risks, and the broader social and political implications of their actions. Take for example a distributor that exports a small electronic component. They do not often sell this component, are unaware of the product’s uses and hence its risks, and the product’s control status (perhaps it has recently been added to the control list). Perhaps they do not have a systematic approach to compliance, and are not yet familiar with the regulations and what needs to be done to go beyond compliance. These actors, again, are driven purely by profit.
- **Indifferent** – these actors understand what they have done, they know it is probably wrong, but do not care. An example could be a businessman, which would take an opportunity to supply a customer in a sanctioned state. The transaction may be illegal or in a ‘gray area,’ however the businessman did not investigate further, but believed that it was unlikely that he would get caught and was happy to take this risk. These actors are driven primarily by profit, although beliefs are also likely to figure in their reasoning. Perhaps they believe that export controls are unfair and burdensome, for example.
- **Ideological** – these actors clearly understand that their actions are ‘wrong’ either in a legal or moral sense. In fact, this may be part of what drives them to act in this way. While they may have other motives, including financial ones, those ideological or pertaining to their worldview outweigh the potential profits of their involvement.

This typology and the different motivations are summarized in the figure below.

Figure 1: The Four 'I's: A Framework Setting out the Role of Non-State Actors in Proliferation

	Non-complicit		Complicit	
Type of actor	Innocent	Ignorant	Indifferent	Ideological
Factors driving involvement				
	Profit	Profit	Profit > Ideology	Profit < Ideology
Factors driving restraint				
Legal and normative	✓	✓	✗	✗
Deterrence by threat of financial or custodial penalty	✓	✓	✓	✗
Prevent by financial or custodial penalty	✓	✓	✓	✓

Policy Tools and Responses

The typology presented in the four I's framework is useful in categorizing the different types of non-state actors involved in proliferation. It is also useful in considering the utility of different government policies and industry actions in preventing proliferation. For each category, different strategies can be used to reduce the likelihood that actors will become involved in proliferation. The matrix below provides some examples of different supply-side strategies to prevent the proliferation of sensitive technologies and their utility.

Figure 2: Supply-side Strategies and their Utility According to the Four 'I's Framework

Strategy Type		Innocent	Ignorant	Indifferent	Ideological
Preventative	Denial	✗	✓	✓	✓
Coercive	Deterrence	✓	✗	✓	✗
Normative	Norms alone	✗	✗	✓	✗
	Education and training	Sometimes	✓	✗	✗

Denial

This strategy involves making it difficult or impossible for the actor to become involved in proliferation. The specific measures that could be used to achieve this strategy could involve imprisonment, removal of export privileges, removal of business licenses, and travel bans (where travel is assumed to help establish trading relations).

Analysis of this framework suggests that the only strategy that can be used against ideologically driven individuals is preventative. A key challenge, therefore, is employing such measures in a timely manner: conventional legal proceedings can take many years, even after sufficient evidence for a prosecution is assembled. It is notable, therefore, that in some jurisdictions, increased use of 'designations' and denial of export business privileges have been employed even without the case having been tested in court (although, in Europe in particular, many of these designations have been overturned by courts of various types on human rights grounds).

Deterrence

This strategy involves increasing the credibility and severity of punishments in order to change the cost-benefit calculus of those that could become involved in proliferation. As previously noted, this requires an awareness of credible risks.

Normative

This strategy can help to combat proliferation but evidently not when the actor is indifferent or ideologically motivated. This strategy could be pursued through promoting the inclusion of nonproliferation measures in Corporate Social Responsibility schemes.

The multilateral regime Nuclear Suppliers Group (NSG) has taken some steps in this direction. In 2011, the group discussed a UK submission entitled “Good Practice Guidelines for Corporate Social Responsibility,” which was subsequently recognized by all but one of the then NSG participants and placed on the NSG’s website as an example of ‘national practices.’³¹ Some efforts have also been made to encourage corporations to adhere to the guidelines, including through, for example, the ‘Partners against Proliferation’ initiative, through which UK firms come together to discuss how best to implement nonproliferation controls. Nonetheless, much more work is needed on a global basis to secure corporate support for nonproliferation practices that go beyond national export control requirements.

It is difficult to identify specific transactions that have not taken place because of normative considerations alone. Instead, normative actions might tend to manifest in risk avoidance behaviors in which companies opt not to do business with certain markets. It should be noted that normative factors also cannot usually be examined in isolation. For example, for several years up to the time of writing, pressure groups sought to dissuade companies from doing business in Iran by evoking normative and social factors. However, the public naming of companies that did not comply with the request to cease operations in Iran had a potential negative impact from a public relations perspective. Anticipation of this would also change the company’s cost-benefit analysis.³²

Awareness Raising, Education and Training

Some actors become involved in proliferation by accident—be it because they were unaware that their goods were sensitive or controlled or because they did not know what due diligence should have been conducted. For such firms, awareness raising, training and education is key.

There can be substantial challenges to awareness raising for national authorities, however, and there is a general sense in most countries that smaller companies and academia do not have a good understanding of export control requirements. This is likely a result of some very practical challenges: the sheer size of the control lists means that a very large number of manufacturers and exporters may need to know about controls. This number grows substantially when the service sectors (shippers, financiers, and insurers) are taken into account, particularly if the focus of the activity is to go ‘beyond compliance.’

31 “Good Practices for Corporate Standards to Support the Efforts of the International Community in the Non-Proliferation of Weapons of Mass Destruction,” Nuclear Supplier Group, <<http://www.nuclearsuppliersgroup.org/en/national-practices>>.

32 One such group was “United Against Nuclear Iran.” Details of which can be found on the UANI website: <<http://www.unitedagainstnucleariran.com/>>.

There are many cases each year in which a firm that is seemingly unaware of export control requirements exports goods. It should be noted that such 'legal non-compliance' does not necessarily mean that proliferation has occurred.

Generally, non-compliance as a result of a lack of awareness is dealt with by civil penalties or administrative actions as opposed to criminal charges. This partly reflects the fact that in many countries export control violations are not 'strict liability' offenses and partly reflect a desire by regulators to not over-regulate.

Real-world Cases

Cases where non-state actors discuss their motivations and the deterrent effect of enforcement actions are rare. One of these few cases involves an Australian national, David Levick, who has been unusually frank since being charged by U.S. authorities of involvement in illicit trade. Another relevant case relates to the proliferation network of Hossien Tanhedih. A third case relates to MKS Instruments Ltd.

The Levick Case

Levick was indicted in February 2012 by an American district court for allegedly supplying U.S.-origin electronic components and helicopter parts to Iran.³³ According to press reports, Levick supplied these parts to Iran via an Iranian national who had himself been indicted on charges of export control violations by the U.S. government three years prior.³⁴ Even though Levick and his company were operating from an address in Sydney, U.S. law nevertheless restricts the supply to Iran of the components involved, and Levick was charged with participating in a conspiracy to breach U.S. export controls over a two-year period.³⁵

The indictment against Levick alleges a series of willful deceptions on his part. Levick allegedly provided false destinations and end-users for the goods he purchased from the U.S., indicating that they were being purchased for companies and destinations in Australia or New Zealand. Placing an order with a U.S. supplier for helicopter parts, for example, Levick said that the parts were being bought for BHP Billiton, an Anglo-Australian mining company. The indictment states that the parts (as with several of his other procurements) were actually destined for Iran.³⁶

Levick himself has admitted supplying goods to Iran. He says, though, that he was ignorant of the export control laws that regulated the sale of American-origin goods to that country. To

33 "Australian Man and His Firm Indicted in Plot to Export Restricted Military and Other U.S. Technology to Iran," United States Department of Justice, February 29, 2012, <<http://www.justice.gov/opa/pr/australian-man-and-his-firm-indicted-plot-export-restricted-military-and-other-us-technology>>.

34 Dylan Welch, and Nick Ralston, "Iran Sale: 'They say I'm Incognito'," *The Sydney Morning Herald*, March 2, 2012, <<http://www.smh.com.au/federal-politics/political-news/iran-sale-they-say-im-incognito-20120301-1u61x.html>>; "Iranian Man and His Company Charged in International Scheme to Supply Iran with Sensitive U.S. Technology," United States Department of Justice, <<http://www.justice.gov/opa/pr/iranian-man-and-his-company-charged-international-scheme-supply-iran-sensitive-us-technology>>.

35 "United States vs. David Levick and ICM Components, Inc.," United States District Court for the District of Columbia, February 29, 2012, <https://www.bis.doc.gov/index.php/forms-documents/doc_view/455-filed-indictment>.

36 Ibid.

The Australian newspaper, Levick stated that he ‘didn’t realize I wasn’t allowed to sell stuff to Iran.’³⁷ In an interview with the Australian Broadcasting Corporation after the indictment was made public, Levick said:

*Well, I didn’t even know there was an embargo against [Iran] because the guy that actually contacted me actually thought I was in Austria and when I sent back saying I was in Australia he asked me all these questions and can I supply these and I said yeah okay I’ll supply ya and that was it, I didn’t know they had an embargo against them or anything like that.*³⁸

Levick’s statements to the press suggest that he had some awareness of export controls generally, if not those in place with respect to Iran.

*I, well, I didn’t realize that I wasn’t allowed to sell stuff to Iran. I knew we weren’t to sell stuff to Iraq and Afghanistan and all those other places but I didn’t know about Iran. It is only Turkey, Cameroon and all those other places.*³⁹

Evidence presented in the indictment demonstrates a different picture of Levick’s awareness of regulations on trade and business with Iran during the period he is accused of involvement in illicit trade. In March 2008, Levick reportedly stated to his Iranian contact:

*I have just been informed that the U.S have [sic] put more restriction[s] on the mo[ve]ment of funds from Iran. The ANZ bank close[d] its funds transfers contract with Iran at the end of last month. So you will have to do it from Malaysia next month. Will keep you posted[.] Bloody yanks.*⁴⁰

Then, in April, he reportedly wrote:

*I have always tried my best to get the parts & del[iver to] you [as required]... As U know there are restriction on Iran & I have to do my best to get the parts.*⁴¹

These statements, while revealing, still leave unclear the precise nature of Levick’s awareness of the ‘restrictions’ on trade with Iran and their legal implications.

Levick’s case also gives some insight into the effect of restraining factors upon illicit trade. During the course of 2008, Levick became aware that his activities were being subject to increasing scrutiny by authorities. In June, he reportedly said to his Iranian contact:

37 “Australian Indicted in U.S Says He Didn’t Know about Iranian Sales Embargo,” *The Australian*, March 1, 2012, <<http://www.theaustralian.com.au/news/world/australian-man-indicted-in-us-for-selling-military-components-to-iran/story-e6frg6so-1226285897363>>.

38 Meredith Griffiths, “U.S Indicts Australian Businessman,” *The World Today – Australian Broadcasting Corporation*, March 1, 2012, <<http://www.abc.net.au/worldtoday/content/2012/s3443347.htm>>.

39 Ibid.

40 “United States vs. David Levick and ICM Components, Inc.,” United States District Court for the District of Columbia, February 29, 2012, <https://www.bis.doc.gov/index.php/forms-documents/doc_view/455-filed-indictment>.

41 Ibid.

I have been get[ting] some questions about some of the stuff I have been sending so I do[n't] want to draw att[en]tion [sic] to it. As for shipping I think it was the last lot I sent to Iran that the questions started getting asked.⁴²

Later that year, Levick's office was reportedly raided by the Australian Security Intelligence Organization (ASIO), a domestic security service. According to statements made by Levick to the press, ASIO seized his computers and warned him about supplying goods to Iran.⁴³ Levick apparently described this raid in an email to his Iranian buyer dated September 2008 and cited in the American indictment:

I am sending you this email to let you know that the [Australian government] & the U.S. Customs know about what parts I have supplied to you as I have had a visit from both. I was questioned over the weekend about the business we have done & everything has been taken. Computers, Bank accounts & all paperwork that has to do with the parts supplied & emails are being monitored...So I could advise you of what it [sic] happening [sic] & while [sic] you have had no replies from me as I could face charges & fine for breaking trade rules & 5y in jail.⁴⁴

This raid, by Levick's account, ended his supply relationship with his Iranian buyer. As he told the Australian media in two separate accounts:

It wasn't until [Australian authorities] told me 'you shouldn't be sending these' – I canceled everything...straight away.⁴⁵

It wasn't until ASIO told me that oh you shouldn't be sending these then I canceled everything. I canceled...everything that I had on order with them I just canceled straight away - as soon as ASIO said you shouldn't be supplying them so I said okay that's it.⁴⁶

Indeed, the indictment provides no evidence that Levick made any further sales to Iran beyond this time. The effect of the indictment on Levick, made public in March 2012, was serious indeed. If extradited and found guilty on the charges facing him (conspiracy to defraud the United States and violating the International Emergency Economic Powers Act), Levick would face a maximum sentence of twenty-five years in prison. Levick's response shortly after the release of the indictment was recorded by *The Australian* newspaper:

42 Ibid.

43 "Australian Indicted in U.S Says He Didn't Know about Iranian Sales Embargo," *The Australian*, March 1, 2012, <<http://www.theaustralian.com.au/news/world/australian-man-indicted-in-us-for-selling-military-components-to-iran/story-e6frg6so-1226285897363>>.

44 "United States vs. David Levick and ICM Components, Inc.," United States District Court for the District of Columbia, February 29, 2012, <https://www.bis.doc.gov/index.php/forms-documents/doc_view/455-filed-indictment>.

45 "Australian Indicted in U.S Says He Didn't Know about Iranian Sales Embargo," *The Australian*, March 1, 2012, <<http://www.theaustralian.com.au/news/world/australian-man-indicted-in-us-for-selling-military-components-to-iran/story-e6frg6so-1226285897363>>.

46 Meredith Griffiths, "U.S Indicts Australian Businessman," *The World Today – Australian Broadcasting Corporation*, March 1, 2012, <<http://www.abc.net.au/worldtoday/content/2012/s3443347.htm>>.

*I'm as nervous as shit [...] I'm in a sweat and I feel like I should be going out and getting drunk.*⁴⁷

Levick is not known to have made further public comments on the case, and apparently has neither faced charges in an Australian court nor been extradited to the U.S (indeed, it is unclear if his alleged actions would meet the legal thresholds set by the Treaty on Extradition between Australia and the United States of America).⁴⁸ He is listed in an Australian government business registry as the operator of an electronics component supply firm in Sydney.⁴⁹

In terms of the four I's framework, Levick would seem to fall somewhere between the ignorant and indifferent categories. He was primarily motivated by profit and may have known that his actions were illegal. In terms of preventative action, normative and awareness raising activities did not prevent Levick's actions. Instead, it appears that it was preventative enforcement action that ultimately ended Levick's business with Iran.

The Tanideh Network

The Tanideh network involved the procurement of millions of dollars' worth of specialist valves for the Arak heavy water reactor in Iran, which prior to the alterations agreed as part of the JCPOA could have been used to produce plutonium for nuclear weapons.

At the center of the case was Hossein Tanideh. Tanideh had been 'Vice President' of Iran's Pentane Chemistry Industries Board of Directors as well as Managing Director of the Sherkate Sakhtemani Rahtes Sahami Company, also known as the Rahtes Company.^{50,51} Pentane has been involved in illicit procurement activities, being linked to a shipment of phosphor bronze wire mesh intercepted at Seoul International Airport during trans-shipment between Tianjin, China and Turkey. The UN's Iran sanctions Panel of Experts investigated the interdiction and included findings in its 2011 report that this constituted a breach of sanctions.⁵²

In this case, Tanideh is alleged to have acted on behalf of Modern Industries Technique Company (MITEC), an Iranian company that has used multiple aliases, in order to procure the specialist valves valued at \$7.7 million for the Arak reactor.^{53,54} MITEC contacted Hossein

47 Ibid.

48 "Treaty on Extradition between Australia and the United States of America," Australian Treaty Series 1976 No. 10, Department of Foreign Affairs, Canberra/ Washington, May 14, 1974, <<http://www.austlii.edu.au/cgi-bin/sinodisp/au/other/dfat/treaties/1976/10.html>>.

49 "Current Details for ABN 50 318 452 138," Australian Government, Australian Business Register, <<http://abr.business.gov.au/SearchByAbn.aspx?SearchText=50318452138>>.

50 "Fact Sheet on Increasing Sanctions Against Government of Iran," United States Department of State, United States Virtual Embassy in Iran Website, July 12, 2013, <<http://iran.usembassy.gov/treasfs.html>>.

51 "Covert Iranian Nuclear Dealings via Turkey Revealed", *Today's Zamen*, March 12, 2013, <<http://www.todayszaman.com/news-309539-covert-iranian-nuclear-dealings-via-turkey-revealed.html>>.

52 "Final Report of the Panel of Experts Established Pursuant to Resolution 1929 (2010)," S/2012/395, June 12, 2012, p. 15.

53 "Final Report of the Panel of Experts Established Pursuant to Resolution 1929 (2010)," S/2013/331, June 5, 2013, p. 7.

54 Cathrin Gilbert, Holger Stark, and Andreas Ulrich, "German Investigators Uncover Illegal Exports," *Spiegel Online*, October 1, 2012, <<http://www.spiegel.de/international/world/nuclear-technology-for-iran-german-investigators-uncover-illegal-exports-a-858893-2.html>>.

Tanideh, purportedly the owner of a number of companies in Germany and potentially elsewhere, to request the procurement of three types of valves.⁵⁵ Tanideh's role was allegedly one of facilitator: he identified and approached the manufacturers, including the German firm MIT-Weimar and the Indian firm Bell-o-seal and provided details of false front companies after these manufacturers were approached by the German authorities. He also appears to have used two other individuals, Gholamali Kazemi and Kianzad Kazemi, working for him in Germany to facilitate the scheme. Tanideh allegedly introduced himself to German industrialists as a 'refinery manager.'⁵⁶ Valves frequently have applications in the petro-chemical industries, and assuming this fabricated position, may have inspired confidence in his *bona fides*. Some media sources do cite an email address supposedly used by one of the defendants (although it is not known which one) as ghost18273@hotmail.com.⁵⁷

Rudolf Mayer

Tanideh first made contact with Rudolf Mayer, owner of MIT-Weimar, in 2007.⁵⁸ There is some ambiguity regarding the exact role played by Mayer and MIT-Weimar. Some press reports detail Mayer as a 'valve manufacturer,' citing German intelligence reports that also describe him as a 'manufacturer.'⁵⁹ An individual who attended the trial also verified that Rudolf Mayer's company was said to be the manufacturer of the valves.⁶⁰

Various national authorities, including from the U.S and Germany, had concerns about Iran's procurement activities relating to valves since at least 2009.⁶¹ The U.S State Department first expressed concern to German colleagues around April 2009 with regards to the targeting of German company MIT-Weimar by MITEC.⁶² Again, in September 2009, U.S authorities expressed concern to German authorities regarding attempts by MITEC to procure stainless steel valves, this time from two German companies, including a firm called MIT-Weimar.⁶³

55 Ibid.

56 "Startling Revelations from an Iranian Smuggling Case in Hamburg," The Algemeiner Blog, September 17, 2013, <<http://www.algemeiner.com/2013/09/17/startling-revelations-from-an-iranian-smuggling-case-in-hamburg/>>.

57 "Verstoß gegen Handelsembargo: Deutsche Exporteure wegen Iran-Deals vor Gericht," *Der Spiegel*, July 25, 2013, <<http://www.spiegel.de/politik/ausland/prozess-in-hamburg-geschaeftsleute-sollen-iran-embargo-verletzt-haben-a-913080.html>>.

58 Ibid.

59 "Startling Revelations from an Iranian Smuggling Case in Hamburg," The Algemeiner Blog, September 17, 2013, <<http://www.algemeiner.com/2013/09/17/startling-revelations-from-an-iranian-smuggling-case-in-hamburg/>>.

60 Interview, unnamed individual that attended the November 2013 trial in Hamburg, Germany, conducted January 10, 2014.

61 "Startling Revelations from an Iranian Smuggling Case in Hamburg," The Algemeiner Blog, September 17, 2013, <<http://www.algemeiner.com/2013/09/17/startling-revelations-from-an-iranian-smuggling-case-in-hamburg/>>.

62 "NIAG 9028: Entity with Ties to Iran's Nuclear Program Attempting to Procure Stainless Steel Valves," United States State Department Cable No.09STATE34336, April 8, 2009, <<http://wikileaks.org/cable/2009/04/09STATE34336.html>>.

63 "NIAG 9130: Iran Seeks German-origin Valves," United States State Department Cable No.09STATE96891, September 17, 2009, <http://www.wikileaks.org/plusd/cables/09STATE96891_a.html>.

By December 2009, investigations undertaken by the German authorities indicated to the U.S, incorrectly, that concerns with regards to the targeting of MIT-Weimar were groundless. A cable noted that the German authorities ‘found no evidence of a pending export of steel valves to Sherkat-E Sakhtemani-Ye Rahtess.’⁶⁴ Sherkat-E Sakhtemani-Ye Rahtess was said to be working on behalf of Rahkar Sanaye Novin Company (MITEC) and on behalf of the Atomic Energy Organization of Iran.⁶⁵

Some of these were specified to the Institute of Electrical and Electronics Engineers (IEEE) standard 382 (for nuclear power generating stations), and actuators with “an IP rating of 67.”⁶⁶ The IEEE 382 standard is particularly notable given that products meeting this specification are able to operate in a radiation environment.⁶⁷ This number of valves is believed to be sufficient to equip the entire Arak facility and had a value of \$7.7m USD.

Bekasar Industrietechnik GmbH

A second dimension to the case involved the procurement of valves from a Halle-based business. Attempts were made to procure 655 valves, with fifty-five being transferred to Iran. This Halle-based company is Bekasar Industrietechnik GmbH, described as a ‘wholesaler’ of industrial products.⁶⁸ It is unknown where the valves were procured from in this case—Bekasar is not a manufacturer.

Gholamali and Kianzad Kazemi

Gholamali and Kianzad Kazemi worked on behalf of Tanideh in Germany to facilitate the scheme. Kianzad Kazemi, the son of Gholamali Kazemi, was undertaking an apprenticeship at Bekasar.⁶⁹ He was in the second year of the apprenticeship and had been given responsibility for deals involving Iran, amongst other activities. Kianzad was allegedly present at the initial meeting between Mayer and Tanideh. The Kazemis also have other business interests, purportedly in the import-export area. However, there is no evidence that any of the above companies were used by the Kazemis in their illicit activities.

64 “NIAG 9028: Germany Says No Deals in Place to Send German Origin Steel Valves to Iran,” United States State Department Cable No. 09BERLIN1535, United States Embassy Berlin, December 3, 2009, <<http://wikileaks.org/cable/2009/12/09BERLIN1535.html>>.

65 “NIAG 9028: Entity with Ties to Iran’s Nuclear Program Attempting to Procure Stainless Steel Valves,” United States State Department Cable No.09STATE34336, April 8, 2009, <<http://wikileaks.org/cable/2009/04/09STATE34336.html>>.

66 Ibid.

67 See the IEEE 382 Standard, available online at: <<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=531658>>.

68 Interview, unnamed individual that attended the November 2013 trial in Hamburg, Germany, conducted January 10, 2014; “Bekasar Waren Import Export,” listing on HelloTrade website, available online at: <<http://www.hellotrader.com/bekasar-waren-import-export/>>.

69 Interview, unnamed individual that attended the November 2013 trial in Hamburg, Germany, conducted January 10, 2014.

Kinzaid Kazemi and his father Gholamali Kazemi are alleged in some cases to have been ‘responsible for coordinating the project in Germany.’⁷⁰ This would seem a possibility given Tanideh’s arrest in Turkey.

Indian Aspects

Unable to source all the valves required within Germany, Tanideh purportedly sourced valves from the Indian firm ‘Bell-o-seal’ using front companies in Turkey. The Indian enterprise developed a capability to manufacture bellows-sealed valves after the country’s isolation from the global nuclear market following its nuclear tests.

There are conflicting reports as to whether the Indian government issued a license for the export. In fact, some media reports allege that a license was not required.⁷¹ If a license was issued, it suggests that insufficient due diligence was conducted by Indian licensing officials.

Case Outcomes

Tanideh was designated by the U.S under EO13382 in mid-2012. He was arrested in January 2013 and was in prison in Turkey awaiting trial with German extradition requests. Turkish authorities denied Germany’s request, and released him from prison in 2014.⁷² On November 8, 2013, four German nationals were also convicted of involvement in the conspiracy in a German court.⁷³

- Rudolph Mayer (German national) – Weimar-based businessman and owner of MIT-Weimar received three years in prison;
- Gholamali Kazemi (German-Iranian national) – Received four years in prison;
- Kianzad Kazemi (German-Iranian national) – employee of Bekasar, son of Gholamali K. received two years, nine months in prison;
- Hamid Khouran (German-Iranian national) – Received a suspended sentence of one and a half years.

70 Cathrin Gilbert, Holger Stark, and Andreas Ulrich, “German Investigators Uncover Illegal Exports,” *Spiegel Online*, October 1, 2012, <<http://www.spiegel.de/international/world/nuclear-technology-for-iran-german-investigators-uncover-illegal-exports-a-858893-2.html>>.

71 “India Denies Charge of Involvement in Illicit Nuclear Trade,” *The Hindu*, October 30, 2013, <<http://www.thehindu.com/news/national/india-denies-charge-of-involvement-in-illicit-nuclear-trade/article5286629.ece>>.

72 “German Authorities Sentence Four Men for Supplying Iran with Valves for Heavy Water Reactor,” *Iran Watch*, February 25, 2015, <<http://www.iranwatch.org/our-publications/international-enforcement-actions/german-authorities-sentence-four-men-supplying-iran-valves-heavy-water-reactor>>.

73 Cathrin Gilbert, Holger Stark, and Andreas Ulrich, “German Investigators Uncover Illegal Exports,” *Spiegel Online*, October 1, 2012, <<http://www.spiegel.de/international/world/nuclear-technology-for-iran-german-investigators-uncover-illegal-exports-a-858893-2.html>>; “Haftstrafen für Embargo-Verstoß: Gericht verurteilt vier Geschäftsleute,” *Die Welt*, November 9, 2013, <http://www.welt.de/print/die_welt/hamburg/article121709163/Haftstrafen-fuer-Embargo-Verstoss.html>.

One of the four will spend time in prison.⁷⁴ The actions and testimony of the four in court can shed some light on what drove them to take part in these transactions.⁷⁵ Mayer and Khouran seemed to be motivated by the financial gain. The Kazemis appeared to be more motivated by their allegiance to the Iranian regime. Khouran did not share such an allegiance.

Applying the Four I's Framework

It is helpful to examine this network through the four I's framework as it involves actors that can be categorized in different parts of the framework.

The Indian entity appears to fall into the category of either 'innocent' or 'ignorant.' The valves were allegedly not subject to control, which would imply 'innocence.' However, the nature of the products perhaps should have resulted in additional questions being asked about the nature of the end-use. There are no grounds to believe that if the Indian firm had known the true end-use, it would have proceeded with the transaction.

Mayer appears to fall into the category of 'indifferent.' His company continued to engage in the transactions despite the fact that German authorities had visited the company to ask questions about the deal. It is possible also that the German-Iranians were simply indifferent, although their nationality could lead one to suspect that they were ideologically motivated. Certainly, the threat of punishment was not sufficient to end their interests in the deal.

Tanideh appears to fall into the category of 'ideological' or 'ignorant.' This reflects the fact that he became involved in this network after having worked for Iran's nuclear program and that he took active steps to create mechanisms to evade non-proliferation controls.

MKS Shanghai Ltd. Case

MKS Instruments Ltd. is one of the main producers of a vacuum measurement instrument known as a capacitance manometer. Hundreds of such devices are required in any uranium enrichment program and Iran is known to have acquired many MKS units even though no exports to Iran's program were authorized from the U.S. It is not known how all of the instruments reached Iran, but it is known that several hundred units were diverted from a wholly owned subsidiary of MKS Instruments Ltd known as MKS Shanghai Ltd. to Iran in the period 2009-2012.

An employee of China-based MKS Shanghai Ltd., Qiang Hu, and another Chinese National, Sihai Cheng, has entered a plea agreement with U.S prosecutors in relation to this case. From that plea agreements it appears that Cheng had a long-standing relationship with an Iranian national named Jamili, an individual known to be linked to Iran's nuclear program. Jamili, it is alleged, approached Cheng about obtaining capacitance manometers. Cheng then approached MKS Instruments Ltd., and the company's then sales manager and brother of the general manager, Qiang Hu, advised Cheng to seek the goods through a business acquaintance, Wang

74 "The Arak Trial in Hamburg: Sanctions against Iran and German Control Authorities," Stop the Bomb website, November 16, 2013, <<http://de.stopthebomb.net/en/germany-iran/bafa.html>>.

75 Interview, unnamed individual that attended the November 2013 trial in Hamburg, Germany, conducted January 10, 2014.

Ping, who was the owner of other businesses, including one named Racy System and a Hong Kong registered business named Wang Chao International Trade Co. Ltd.⁷⁶

Hu had pressure transducers shipped to the businesses of Wang Ping, who in turn is alleged to have had the capacitance manometers shipped to unauthorized end-users through his front companies.⁷⁷ It is also alleged that Hu knowingly submitted false end-user undertakings to MKS Instruments Ltd. in Andover, Massachusetts for ultimate submission to the U.S export licensing authorities.⁷⁸ A stock of goods that had been shipped to MKS Shanghai Ltd. for another named customer was also diverted.⁷⁹

Based on court documents, it is believed that the network changed a mark-up of around 100% on the usual MKS sales price (bringing the total to \$1.8m for 790 units).⁸⁰ This demonstrates the potentially lucrative profits that can be achieved by trading illicitly in controlled goods, for which there is high demand and limited supply.

Applying the Four I's Framework

As with the last case, this case is an interesting one to examine through the four I's framework as different actors can be considered in different positions. The US-based MKS Instruments Ltd. appears to be either 'innocent' or 'ignorant,' given that they sought export licenses in good faith based upon the information provided by their subsidiary. The staff of MKS Shanghai Ltd. and, allegedly, Cheng, also appear to be 'indifferent.'

It should be noted that most of the individuals involved in this case were located in China—a country considered to have a lax counter-proliferation enforcement record. Indeed, it appears that the action, while illegal, could not have been prosecuted as a criminal offence in China because of certain inadequacies in Chinese law at the time. Evidently, this would erode any deterrence effect of the controls. It is also interesting to note that the individuals in this case face justice not in China but in the United States. In 2012, Hu flew to Boston's Logan airport and was arrested, while Cheng was extradited to the United States after being detained when arriving at Heathrow airport in London in 2014.

While little is known about Jamili, it appears that his role working as a procurer for Iran's nuclear program would place him in the 'indifferent' or 'ideological' category. Certainly, there are no signs that he was deterred as a result of the potential consequences of his actions.

Interestingly, the response of MKS Instruments Ltd. to the case was to implement what they describe as the 'controlled delivery model,' a logistics approach that bypasses the involvement of non-state actors in proliferation.⁸¹ This involves shipping goods directly from MKS

76 "United States of America vs. Qiang Hu a/k/a/ Johnson Hu: Government Sentencing Memorandum," Case 1:12-cr-10188-PBS, filed July 18, 2014.

77 Ibid.

78 Ibid.

79 Ibid.

80 Ian Stewart, Andrea Stricker, and David Albright, "Chinese Citizen's Involvement in the Supply of MKS Pressure Transducers to Iran: Preventing a Reoccurrence," ISIS Reports, April 14, 2014, <http://isis-online.org/uploads/isis-reports/documents/MKS_China_30Apr2014-final.pdf>.

81 Ian Stewart, and J. McGovern, *Beyond Compliance: Preventing the Diversion of Sensitive Vacuum Measuring Equipment - The Controlled Delivery Model*, (London: CSSS Occasional Paper Series, 2013).

headquarters to customers. The shipping agent is a large corporate entity that also serves other multinational companies. MKS describe the motivation of involving such an entity in the process as ‘taking profit out of proliferation’ because it would not be in this company’s financial interest for MKS stock to be diverted. This model is thus an illustration of how an understanding of the drivers for non-state actor involvement in proliferation can help to design approaches that can counter the role of such actors in proliferation.

Conclusions

This paper has examined the factors that could drive non-state actors to become involved in proliferation and the factors that could cause restraint. A framework through which to examine these competing factors was also developed.

The framework highlights a number of potential drivers for non-state actors to become involved in proliferation. Perhaps the most notable of these drivers is profit. However, in some important cases, ideological factors have also contributed substantially to the actions of proliferators. It is notable that, in some cases, ignorance of legal requirements and proliferation risks appears to have aided proliferation. The framework also highlights possible policy responses for each type of driver, which could prevent, or at least discourage, involvement in proliferation.

Examining proliferation through the lens of the four I’s framework can be used to inform efforts to prevent illicit trade. In particular, it is apparent that awareness efforts should be expanded and more publicity should be sought in relation to enforcement actions. It should also be noted that for certain types of actors no deterrent-based strategy is likely to be effective. Therefore, preventative strategies, including imprisonment and denial of export privileges, are also required.